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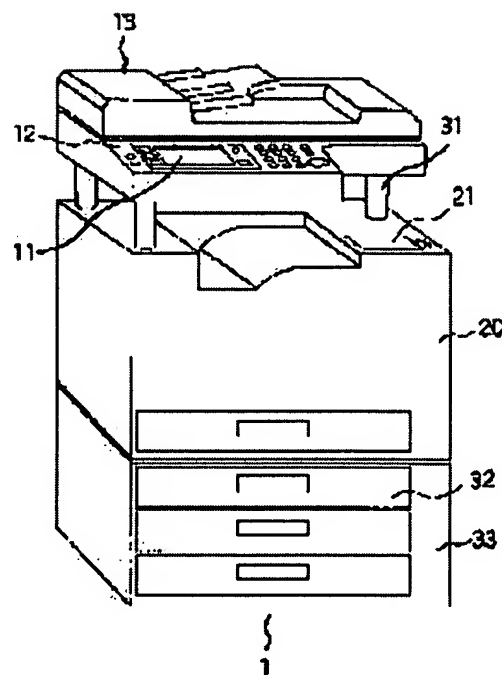
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(54) IMAGE PROCESSOR

(57)Abstract:

PROBLEM TO BE SOLVED: To improve the visibility of an image processing state of each function section by displaying information relating to image processing onto any display section among those in each function section so as to display information relating to image processing of each function section on the display section in an easily understandable way depending on a state of at least two function sections or over managed by a state management means.

SOLUTION: The image processor is provided with a scanner section that is designed as a unit and reads an original to obtain image data and with a printer section 20 that forms an image on recording paper on the basis of the image data. The scanner section is provided with a scanner side display section 11, and the printer section 20 is provided with a printer side display section 21. Then a control means allows the scanner side display section 11 or the printer side display section 21 to display information relating to the image processing depending on the state of the scanner section and the printer section 20 managed by a state management means.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention prepares a display in at least two or more function parts, for example, the image formation section by which unitization was carried out and the image input section, respectively, and relates to image processing systems, such as a digital copier which displays the information about an image processing by this display.

[0002]

[Description of the Prior Art] After reading the document image electronically in the scanner section which is the image input section and performing predetermined processing to this read electronic image data conventionally, the image which performed light-scanning record at the electrophotography Records Department which is the image-formation section, and performed this light-scanning record developed, imprint fixing of this developed image carried out at a record form, and the digital copier which is the image processing system which carries out record reappearance was about an image.

[0003] Such a digital copier had the scanner section for reading a document image electronically and obtaining electronic image data, and the printer section which performs image formation in a record form based on electronic image data, the structure where the scanner section is arranged in one on the top face of the printer section is most, and the display was prepared only in the control-panel section on the top face of equipment with such structure.

[0004] However, as shown in drawing 1, unitization of the scanner section 10 and the printer section 20 is carried out separately, the scanner section 10 is arranged and constituted above the printer section 20, and the digital copier with which the scanner side display 11 and the printer side display 21 were formed in these scanner sections 10 and printer sections 20, respectively is proposed.

[0005] Thus, in the digital copier which equipped each of the scanner section 10 and the printer section 20 with the scanner side display 11 and the printer side display 21, the information about an image processing was displayed on both the scanner side display 11 and the printer side display 21.

[0006] For this reason, a user (user) can operate it, looking at the scanner side display 11 of the scanner section 10 at the time of normal operation which is stood and operated, and he can process, looking at the printer side display 21 of the printer section 20 which exists caudad at the time of actuation which squats down like at the time of jam processing, and is processed. Therefore, in any case, the screen of a display was in the legible condition.

[0007]

[Problem(s) to be Solved by the Invention] However, with the above-mentioned configuration, since all information was displayed on both the scanner side display 11 and the printer side display 21, there was a problem that it was unclear whether it is the information on the image processing concerning [whether it is the information on the image processing about the scanner section 10 and] the printer section 20, and it gave derangement to a user.

[0008] that is, it had become the cause of producing [as opposed to / in that the information concerning actuation of the printer section 20 since the image processing of separate image data of the scanner section 10 and the printer section 20 which comes out, respectively and is different is usually possible, while the user is looking at the scanner side display 11 in the digital copier to which unitization of the scanner section 10 and the printer section 20 was carried out, respectively is displayed on the scanner side display 11 **** / a user] derangement when [that] reverse. Moreover, such a problem especially becomes more remarkable in the digital copier with which a facsimile function and printer ability were unified.

[0009]

[Means for Solving the Problem] In the image processing system equipped with the display as which this invention has the function part by which unitization was carried out to at least two or more in order to solve the above-mentioned problem, and each function part displays the information about an image processing, respectively It has a status management means to manage the condition about each image processing in the above-mentioned function part, and the control means controlled according to the condition of each function part managed by the above-mentioned status management means to display the information about an image processing on which display of the above-mentioned function parts.

[0010] The function part of this invention has prepared the 2nd display in the above-mentioned image formation section while it consists of the image input section which reads the manuscript by which unitization was carried out and obtains image data, and the image formation section which forms an image on a record form based on image data and prepares the 1st display in the above-mentioned image input section.

[0011] While it being parallel and performing the image processing to image information different, respectively from the image input section and the image formation section is formed possible, it arranges the image input section above the image formation section, and this invention controls a control means to display the information about the image information in the image input section on the 1st display regardless of the condition of the image formation section.

[0012] While it being parallel and performing the image processing to image information different, respectively from the image input section and the image formation section is formed possible, it arranges the image input section above the image formation section, and this invention controls the above-mentioned control means to make it display on the 1st display, only when the image input section is not performing the image processing [as opposed to other image information for the condition about the image processing in the image formation section].

[0013] While it being parallel and performing the image processing to image information different, respectively from the image input section and the image formation section is formed possible, this invention The image input section is arranged above the image formation section, and an existence check means to check existence of the user who inputted the image information which is carrying out current processing in the image input section or the image formation section is established. A control means When existence of a user is checked with the above-mentioned existence check means, it controls to display the information about the image processing performed to the 1st display of the above now.

[0014] While it being parallel and performing the image processing to image information different, respectively from the image input section and the image formation section is formed possible, it arranges the image input section above the image formation section, and after displaying the information about an image processing on the 1st display, this invention will control an account control means to display the above-mentioned information on the 2nd display, if a user operates the image formation section.

[0015] While it is formed possible that this invention is parallel and performs the image processing to image information different, respectively from the image input section and the image formation section, it arranges the image input section above the image formation section, and a control means controls the 2nd display in the non-actuation condition, when displaying the information about an image processing on the 1st display, and the image formation section is not performing the image processing to other image information.

[0016]

[Embodiment of the Invention] One operation gestalt of the digital copier which is the image processing system of this invention is explained with drawing 1 thru/or drawing 12 .

[0017] It has the scanner section 10 for each to read electronically the document image by which unitization was carried out, and obtain electronic image data, and the printer section 20 which performs image formation in a record form based on electronic image data, and between the top faces of the printer section 20 concerned, this digital copier 1 has a gap, it is supporting the scanner section 10 by the supporter material 31 above the printer section 20, and is arranging above.

[0018] The scanner side display 11 is formed in the control-panel section 12 of this scanner section 10, and the information about an image processing is displayed by this scanner side display 11. Moreover, the automatic manuscript transport device (ADF) 13 which conveys the manuscript which reads to a manuscript base automatically is formed in the top face of the scanner section 10 free [closing motion].

[0019] While the printer side display 21 is formed in the top face of the above-mentioned printer section 20, the paper

output tray 22 to which the record form by which image formation was carried out is delivered is formed, and the information about an image processing is displayed by this printer side display 21.

[0020] And the feed section 33 with the sheet paper cassette 32 which holds the record form fed to the lower part of the printer section 20 at the printer section 20 is arranged.

[0021] As the digital copier 1 by which the configuration was carried out [above-mentioned] is shown in drawing 2 , network connection of the personal computer 2 which are two or more external instruments, a digital camera 3, a digital camcorder 4, and the personal digital assistant equipment 5 grade is carried out.

[0022] From the image recording section, record reappearance is carried out as an image and the image data transmitted through an interface from this external instrument by which network connection was carried out is outputted, once it is sent to the image-processing section of a digital copier 1 and predetermined processing is performed.

[0023] Next, in this digital copier 1, the configuration and function of the image-processing section to perform an image processing to the read manuscript image information are explained.

[0024] Drawing 3 is the various unit sections and the whole image-processing section etc. block block diagram which constitute the above-mentioned digital copier 1, and it shows the condition of carrying out management of operation, taking cooperation with the sub arithmetic and program control (CPU) 101 carried for every unit section with the Maine arithmetic and program control (CPU) 401 located in the center of abbreviation.

[0025] The operation panel board 100 to which a digital copier 1 carries out supervisory control of the control-panel section greatly as shown in this drawing 3 , The machine-control board 200 which carries out supervisory control of each unit which constitutes a digital copier 1, The CCD board 300 which reads a manuscript image electrically and is used as electronic data, The Maine image-processing board 400 which performs a predetermined image processing to the manuscript image electronic-data-ized on the CCD board 300, The sub image-processing board 500 which performs a further predetermined image processing to the image information processed on this Maine image-processing board 400, Furthermore, it consists of add-in board groups 600 (a printer board, a FAX board, functional add-in board) of others which were connected to the sub image-processing board 500 through the interface etc.

[0026] Hereafter, the contents which are carrying out supervisory control for every board are explained.

[0027] (Operation panel board 100) The operation panel board 100 is fundamentally controlled by the sub arithmetic and program control 101, and has managed the actuation input from the actuation key group 105-1,105-2 which inputs the directions about the LCD display 104-1 (scanner side display 11) arranged on the control panel 103-1 of the scanner section 10, and the control panel 103-2 of the printer section 20, the display screen of 104-2 (printer side display 21), and various modes etc. And the memory 102 which memorizes various control information in a control panel, such as information displayed on the data inputted from the actuation key group 105 and a LCD screen, is formed.

[0028] By this configuration, the sub arithmetic and program control 101 performs data communication, such as control data with the Maine arithmetic and program control 401, and performs directions of a digital copier 1 of operation.

[0029] Moreover, from the Maine arithmetic and program control 401, the operating state in what kind of condition equipment is to an operator now through the LCD screen 104-1,104-2 of a control panel 103 by transmitting the control signal which shows the operating state of a digital copier 1 to the sub arithmetic and program control 101 is displayed.

[0030] (Machine-control board 200) The machine-control board 200 The whole is controlled by the sub arithmetic and program control 201. The automatic manuscript feed gears 203 (automatic manuscript transport device 13), such as ADF and RADF, The reading scanner section 204 (scanner section 10) for reading a manuscript image, The process section 205 (printer section 20) for reproducing image information as an image, The feed conveyance section 206 which carries out sequential conveyance of the form with which an image is recorded toward the process section from a stowage, The finisher 208 who performs after treatment, such as a staple, to the double-sided unit 207 which carries out reversal conveyance of the form so that the form with which the image was recorded may be reversed and an image may be formed in both sides of a form, and the form with which the image was recorded is managed.

[0031] (CCD board 300) The CCD board 300 consists of an analog circuit 303 which performs the gain adjustment of the analog data outputted from the circuit (CCD gate array) 302 which drives CCD301 and CCD301 and CCD301 for reading a manuscript image electrically etc., A/D converter 304 which changes the analog signal of CCD301 into a digital signal, and is outputted as electronic data, and control management is performed by the Maine arithmetic and program control 401.

[0032] (Maine image-processing board 400) The Maine image-processing board 400 So that it may be controlled by the

Maine arithmetic and program control 401 and can express in the state of a request of the gradation nature of an image based on the electronic data of the manuscript image sent from said CCD board 300. The multiple-value image-processing section 402 which processes with the condition of the image data of multiple values, such as a shading compensation, concentration amendment, field separation, filtering, MTF amendment, resolution conversion, an electronic zoom (variable power processing), and a gamma correction, In order to reproduce an image by the memory 403 which memorizes various control information, such as procedure management of the image data or processing in which processing was performed, and the image information to which processing was performed, it consists of laser control 404 which carries out transfer control of the data to the laser write-in unit 46 side.

[0033] (Sub image-processing board 500) The sub image-processing board 500 The binary image-processing section 501 which the connector joint was carried out to the Maine image-processing board 400, and was controlled by the Maine arithmetic and program control 401 on the Maine image-processing board 400, The gate array 502 which controls the memory and memory which carry out the storage management of the binary image information to which the image processing was performed, or the control information on processing, The gate array 503 which controls the hard disk and hard disk for carrying out the storage management of the manuscript image information of two or more sheets, repeating the manuscript image of two or more sheets, reading only the number of request number of copies, and generating two or more duplications, It consists of gate arrays 504 which control SCSI and SCSI as an external interface.

[0034] Moreover, the above-mentioned binary image-processing section 501 consisted of the processing section which changes multiple-value image information into binary image information, the processing section turning around an image, the binary variable power (zoom) processing section which performs variable power processing of a binary image, and it is equipped also with the facsimile interface so that a facsimile image can be further transmitted and received through means of communications.

[0035] (Add-in board 600) As an add-in board 600 The printer board 601 for enabling the output of the data sent from a personal computer etc. as printer mode from the printer section 20 of a digital copier, The functional add-in board 602 for extending the edit function of a digital copier and using the description of a digital copier effectively, The manuscript image read in the scanner section 10 of a digital copier is transmitted to a phase hand, or there is a facsimile board 603 which makes it possible to output the image information sent by the phase hand from the printer section 20 of a digital copier.

[0036] Actuation of the scanner section 10 to which unitization of the digital copier 1 was carried out, and the printer section 20 is controlled by such configuration to be shown in drawing 1 , and the display control at the time of each actuation of a digital copier 1 is explained below.

[0037] (at the time of scanner section 10 actuation) When reading processing of a manuscript is made to perform or a user performs jam processing of the manuscript conveyance jam in the manuscript automatic transferring machine (ADF) 13 in the scanner section 10, the information (manuscript reading situation display, guide display of jam procedure, etc.) about the scanner section 10 is always displayed on the scanner side display 11 of the scanner section 10.

[0038] For example, when manuscript reading actuation is performed in the scanner section 10, the display screen in which under manuscript reading is shown as shown in drawing 4 is displayed on the scanner side display 11 of the scanner section 10.

[0039] Moreover, when the manuscript conveyance jam in the manuscript automatic transferring machine 13 arises, the display screen as shown in drawing 5 is displayed on the scanner side display 11.

[0040] In addition, as these displays are shown in drawing 6 , regardless of the operating state of the printer section 20, it is always displayed on the scanner side display 11 (in drawing 6 , the case where the condition of the scanner section 10 is in the jam condition of the manuscript automatic transferring machine 13 is illustrated.).

[0041] When this, i.e., a user, is performing the processing and actuation about the scanner section 10, it aims at telling display information certainly to a user by displaying using the scanner side display 11 in a legible location by the user.

[0042] In addition, when there is not a user who does not cause a user's derangement and is operating the printer section 20 even if it is the case where there is a user who is operating the printer section 20 if it is made not to display the information about the scanner section 10 on the printer side display 21 of the printer section 20 at this time, power consumption can be stopped by making the printer side display 21 into a non-actuation condition.

[0043] (at the time of printer section 20 actuation) The printer section 20 sets working and the display screen under

copy actuation as shown in drawing 7 thru/or drawing 9 , the display screen under printer actuation, or the display screen of the conveyance jam of a record form is displayed.

[0044] These display screens are displayed on the scanner side display 11, when there is no presenting of the information the scanner section 10 side is waiting and concerning the scanner section 10, as shown in drawing 10 (in drawing 10 , the case where the condition of the printer section 20 is in a paper jam condition is illustrated.).

[0045] In addition, power consumption can be stopped by making the printer side display 21 of the printer section 20 into a non-actuation condition at this time.

[0046] For this reason, even if the information displayed is the information about the printer section 20, display information can be certainly told to a user by carrying out using the scanner side display 11 in a legible location by the user.

[0047] However, when reading actuation of a manuscript etc. is performed in the scanner section 10 at this time, the information about the scanner section 10 is preferentially displayed on the scanner side display 11, and the information about the above printer sections is displayed on the printer side display 21.

[0048] If a trouble occurs in the printer section 20 as shown in the flow chart of drawing 11 , this actuation judges whether the scanner section 10 is working (S1), and when the scanner section 10 is not working, it will display the contents of a trouble of the printer section 20 on the scanner side display 11 of the scanner section 10 (S2). If it judges that the scanner section 10 is working by S1, the contents of a trouble of the printer section 20 will be displayed on the printer side display 21 of the printer section 20 (S3).

[0049] And a dissolution of the trouble of the printer section 20 resets the display of the message of (S4), the scanner side display 11, or the printer side display 21 (S5).

[0050] Moreover, if the scanner section 10 is waiting when jams, such as a paper jam, arise in the printer section 20 side according to the above, the alarm display screen (drawing 9) of a jam will be displayed on the scanner side display 11.

[0051] However, when a user starts jam processing by this display, the display of the scanner side display 11 is changed into the printer side display 21 by actuation (for example, in order to perform jam processing, the panel of the front face of a digital copier 1 is opened) to a user's printer section 20.

[0052] It takes action to see a guide display also in the actuation (activity) which this performs by a user squatting down, and it becomes unnecessary to look into the scanner side display 11.

[0053] Moreover, if approach of an input person is detected, the existence is checked, when a digital copier is approached, in order that the input person of image information who is processing now at the time of printer mode may check an output-processing situation for example, and the scanner section 10 is waiting as shown in drawing 12 , the display about the above-mentioned image information will be displayed on the scanner side display 11.

[0054] In addition, at this time, the network where the above-mentioned digital copier 1 is connected is used within [for example, in a company etc.] the existing specific group, and the user who is that constituent has the ID number of a proper in each.

[0055] When the demand of image printing is advanced from external instruments, such as a personal computer connected to the digital copier at this, the ID number of the user by whom this image data advanced the printing demand is added as information.

[0056] And if each user is carrying the ID card with which its own ID number was recorded, this ID card is formed possible [radiocommunication between digital copiers 1] and a user enters in the predetermined range of a digital copier 1, a digital copier 1 will read that ID number by the communication link with the ID card which the user is carrying.

[0057] Thereby, a digital copier 1 can detect approach of an input person, when the input person of image information approaches a digital copier 1. Since detection of such approach of an input person is a well-known technique as indicated by JP,5-273338,A, the detail is omitted.

[0058] Moreover, although the above-mentioned printer side display 21 is made into the same display gestalt as the scanner side display 11 in the above-mentioned operation gestalt, the printer side display 21 is formed small and it may be made to perform only a MESEJI display.

[0059]

[Effect of the Invention] Since invention according to claim 1 displays the information about an image processing on which display of each function part according to the condition of at least two or more function parts managed by the

status management means, it can display intelligibly the information about the image processing of each function part on a display, and can raise the visibility of the image-processing condition of each function part.

[0060] Invention according to claim 2 can raise visibility while it can display intelligibly the information about the image processing of the image input section which reads the manuscript by which unitization was carried out and obtains image data, and the image formation section which forms an image on a record form based on image data using the 1st display and the 2nd display and can check the image-processing condition of the image input section and the image formation section correctly and easily.

[0061] That invention according to claim 3 is parallel, and performs the image processing to image information different, respectively the information about the image information in the image input section of the image input section and the image formation section which were formed possible Since it is displaying on the 1st display of the image input section arranged in the upper part of the image formation section regardless of the condition of the image formation section While being able to carry out looking at the information displayed on the 1st display at the time of the activity of exchange of the manuscript read in the image input section etc. and being able to check information about each image processing correctly and easily, it can improve and, moreover, workability can also raise visibility.

[0062] That invention according to claim 4 is parallel, and performs the image processing to image information different, respectively the information about the image information in the image input section of the image input section and the image formation section which were formed possible Visibility can be raised while being able to check information about the image processing to a user correctly and easily, since it is displaying on the 1st display located more nearly up than the 2nd display only when the image input section is not performing the image processing to other image information.

[0063] Invention according to claim 5 checks existence of the user who inputted the image information processed in the image input section or the image formation section now, and it can raise visibility while it can check information about the image processing to a user correctly and easily, since it shows the information about the image processing performed now to the 1st display located more nearly up than the 2nd display.

[0064] Since invention according to claim 6 will display the above-mentioned information on the 2nd display if a user operates the image formation section after displaying the information about an image processing on the 1st display Even if it is the case where a user's posture becomes low, because of actuation of the image formation section (for example, in order to cancel the jam produced in the image formation section) Visibility can be raised while being able to perform the contents of a display correctly and easily with the present posture, without looking into the 1st display with a high location.

[0065] It can hold down the power consumption by the 2nd display while it can perform the display by the 1st display which the check by looking by the user tends to perform and can check information about an image processing correctly and easily, since invention according to claim 7 is controlling the 2nd display in the non-actuation condition when displaying the information about an image processing on the 1st display, and the image formation section is not performing the image processing to other image information.

[Translation done.]

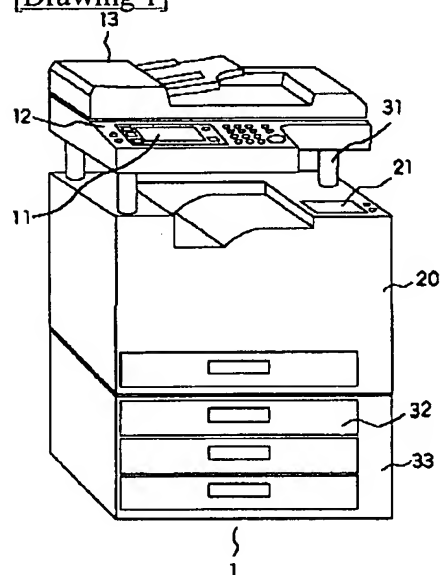
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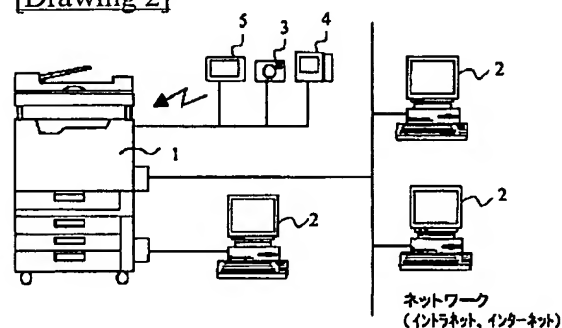
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DRAWINGS

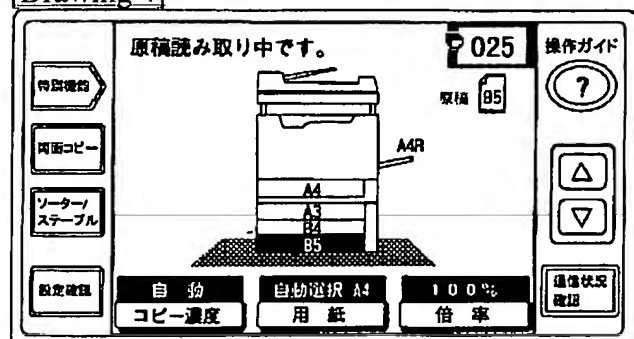
[Drawing 1]



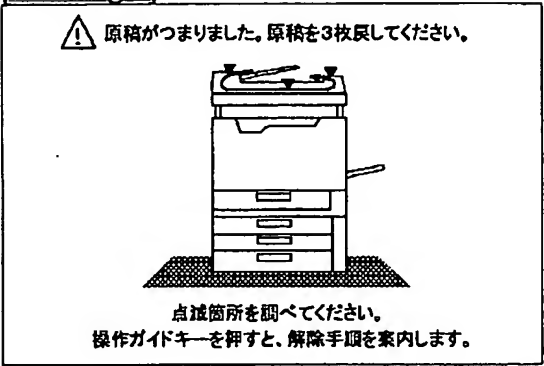
[Drawing 2]



[Drawing 4]



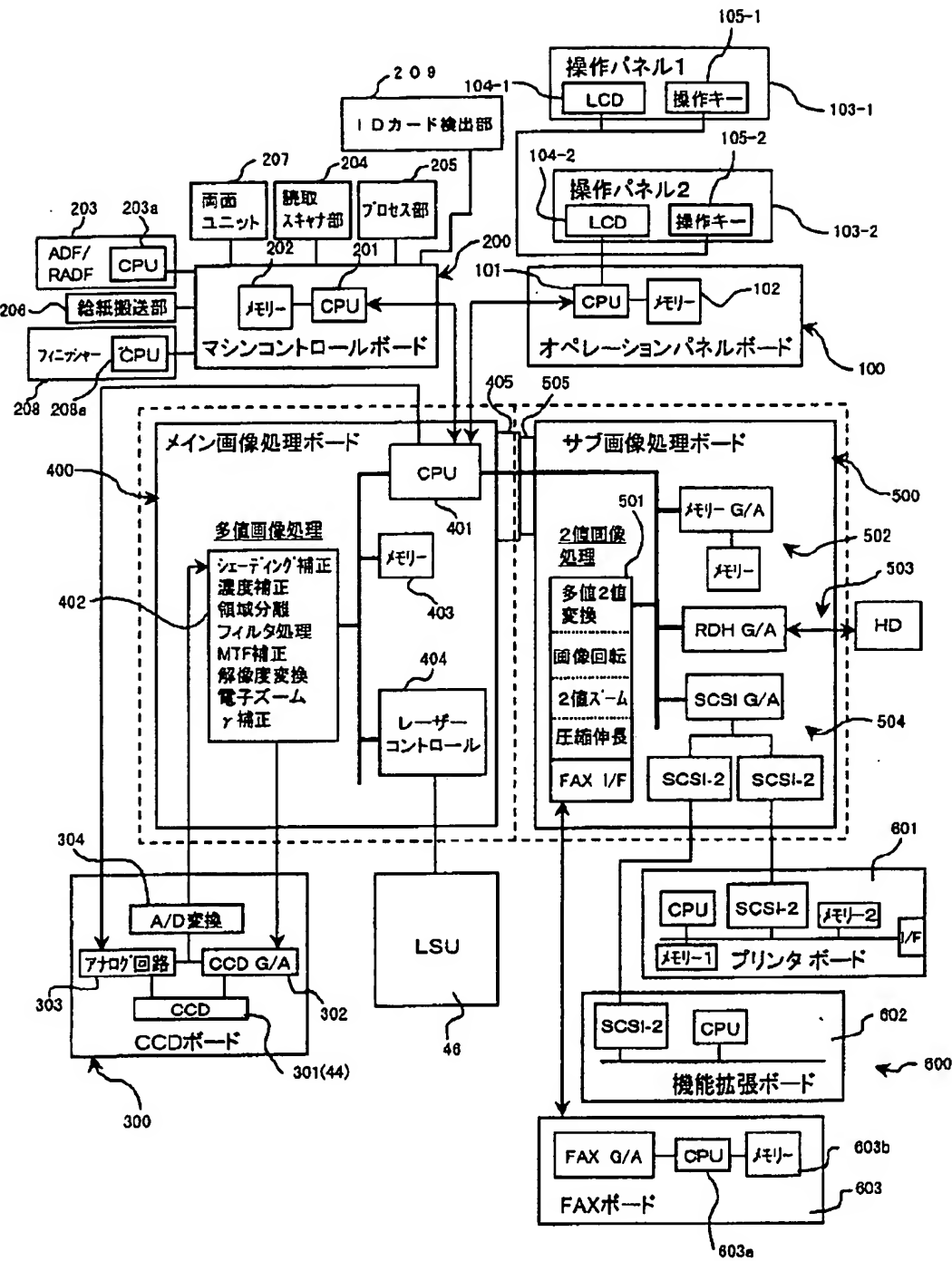
[Drawing 5]



[Drawing 6]

スキャナ部	状態	ADFJAM	ADFJAM
	表示	○	○
プリンタ部	状態	待機中	出力中
	表示	×	×

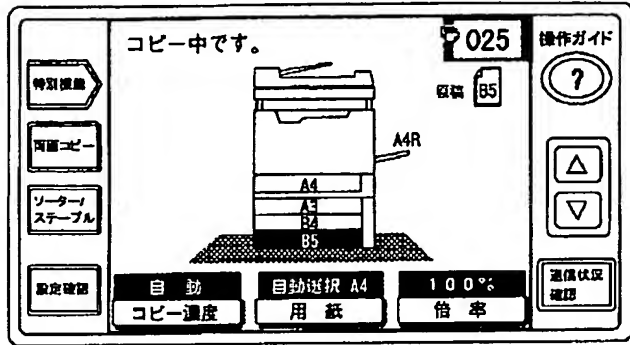
[Drawing 3]



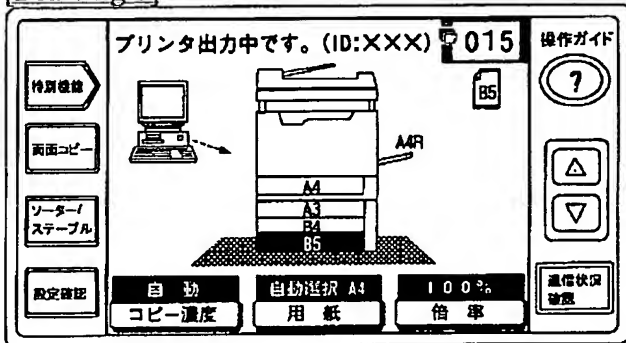
[Drawing 10]

スキャナ部	状態	待機中	待機中	読取中
	表示	○	○	×
プリンタ部	状態	紙づまり	紙づまり	紙づまり
	表示	○	×	○

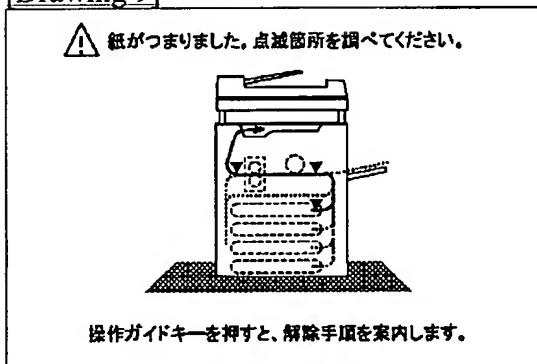
[Drawing 7]



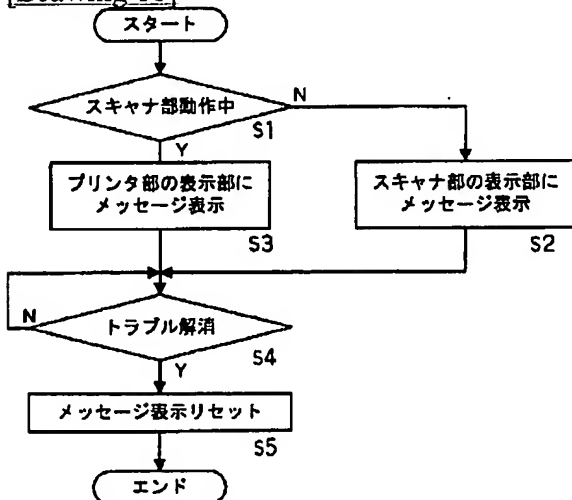
[Drawing 8]



[Drawing 9]



[Drawing 11]



[Drawing 12]

スキャナ部	状態	待機中
	表示	○
プリンタ部	状態	紙づまり
	表示	×

[Translation done.]